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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/853,475	05/11/2001	James E. Justiss	200265	6670

64722 7590 10/18/2006

OSTRAGER CHONG FLAHERTY & BROLTMAN, P.C.
250 PARK AVENUE
SUITE 825
NEW YORK, NY 10177-0899

EXAMINER	
MEHRPOUR, NAGHMEH	

ART UNIT	PAPER NUMBER
2617	

DATE MAILED: 10/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/853,475	JUSTISS ET AL.	
	Examiner	Art Unit	
	Naghmeh Mehrpour	2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on *01 August 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11 and 13* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11 and 13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. **Claims 1-11, 13,** are rejected under 35 U.S.C. 102(b) as being anticipated by Ishida et al. (US Patent 5,860,057).

Regarding claim 1, Ishida teaches a method of digitally canceling interference on a **first plurality** received signal comprising adaptively canceling interference on the received signal using a **second plurality** interference reference feedback signal, the feedback signal acquired downstream from a digital processor (col 8 lines 32-57).

Regarding claim 2, Ishida teaches a method further comprising subtracting an counter-interference signal from the **first plurality** received signal to form a desired signal (col 7 lines 40-41).

Regarding claim 3, Ishida teaches a method further comprising digitally processing said desired signal to generate said **second plurality of** interference reference feedback signal (col 8 lines 31-57).

Regarding claim 4, Ishida teaches a method further comprising correlating said **second plurality** interference reference feedback signal to said desired signal to generate an error signal (col 8 lines 25-31).

Regarding claim 5, Ishida teaches a method wherein adaptively canceling interference on the **first plurality** received signals further comprising generating said counter-interference signal based on said error signal to cancel said interference (col 8 lines 63-67, col 9 lines 1-29).

Regarding claim 6, Ishida teaches a method wherein adaptively canceling interference further comprises iteratively canceling interference on the first **plurality** received signal until said error signal equals zero (col 9 lines 15-67, col 10 lines 1-20).

Regarding claim 7, Ishida teaches a method wherein said adaptively canceling interference on the further comprises digitally and accurately replicating the interference (col 5 lines 40-67, col 6 lines 1-45).

Regarding claim 8, Ishida teaches a method wherein the **adaptively canceling interference on the first plurality of received signals accomplished simultaneously** (col 3 lines 5 lines 40-67, col 6 lines 1-45).

Regarding claim 9, Ishida teaches a method further comprising sequentially digitally canceling interference on a plurality of received signals **adaptively canceling interference on the first plurality of received signals accomplished simultaneously** (col 3 lines 40-67, col 6 lines 1-45).

Regarding claim 10, Ishida teaches a method of canceling interference within the satellite payload (col 5 lines 1-67, col 6 lines 1-2) comprising:

receiving a communication signal having interference (col 6 lines 9-45);

converting said communication signal into the **first plurality** received signals (col 7 lines 10-39);

a subtract or subtracting a counter-interference signal from the **first plurality** received signals to form a desired signal (col 7 lines 40-50);

a digitally processing the desired signal to from a second plurality of interference reference feedback signals (col 9 lines 15-67, col 10 lines 1-20)

a correlator correlating said **second plurality** interference reference feedback signal to said desired signal to generate an error signal (col 8 lines 26-67, col 9 lines 1-32);

adaptively canceling interference on the **first plurality** received **signals** based on said error signal by generating said counter-interference signal to cancel said interference (col 9 lines 16-67, col 10 lines 1-20).

Regarding claim 11, Ishida inherently teaches a satellite communication system (see figure 1) comprising:

a first antenna for receiving a communication signal (col 9 lines 29-65);

an analog-to-digital converter (ADC) electrically coupled to said first antenna, said ADC converting said communication signal to a **first plurality** received **signals** (col 9 lines 15-56);

a satellite payload circuit comprising a first input **the first input electrically coupled to the ADC**, a second **plurality of second inputs**, and **a third plurality of outputs**, said first input is electrically coupled to said ADC (col 9 lines 16-67, col 10 lines 1-6);

said satellite payload circuit digitally processing said received signal to form an interference reference feedback signal (col 9 lines 15-67, col 10 lines 1-6);

a feedback signal path electrically coupling said output to said second input said feedback signal path transferring said interference reference feedback signal from said output to said second input (col 9 lines 15-67, col 10 lines 1-20).

a subtractor electrically coupled to said ADC, said subtractor subtracting a counter-interference signal from said received signal to form a desired signal (col 9 lines 15-67, col 10 lines 1-20);

a digital processor electrically coupled to said subtractor, said digital processor generating said interference reference feed back signal from said desired signal (col 10 lines 21-67, col 11 lines 1-20);

a correlator electrically coupled to a subtractor (0026, 0030-0031), said correlator comparing a interference reference feedback signal to said desired signal to generate an error signal (col 11 lines 5-67, col 12 lines 1-15); and

a controller electrically coupled to said correlator and said subtractor (col 10 lines 15-67, col 10 lines 1-20);

said controller adaptively canceling interference on said received signal based on said error signal (col 9 lines 15-67, col 10 lines 1-20).

Regarding claim 13, Ishida teaches a communication system comprising:

a first antenna for receiving a communication signal (col 6 lines 48-67, col 7 lines 1-10);

an analog-to-digital converter (ADC) electrically coupled to said first antenna, said ADC converting said communication signal to **a first plurality** received signals (col 6 lines 49-67, col 7 lines 1-10);

a subtractor electrically coupled to said ADC (col 7 lines 40-50), said

subtractor subtracting a counter-interference signal from said received signal **first plurality** to form a desired signal (col 7 lines 40-50);

a digital processor electrically coupled to said subtractor, said digital processor generating said a **second plurality** interference reference feed back signal from said desired signal (col 6 lines 46-67, col 7 lines 1-39);

a correlator electrically coupled to said summing junction, said correlator comparing said interference reference signal to said desired signal to generate an error signal (col 6 lines 46-67, col 7 lines 1-39); and

a controller electrically coupled to said substractor and said controller adaptively canceling interference on said received signal based on said error signal (col 7 lines 40-67 col 8 lines 1-23).

Response to Arguments

3. Applicant's arguments filed 8/01/06 have been fully considered but they are not persuasive.

In response to the applicant's argument that Ishida does not teach the claims limitations, the Examiner asserts that is another object of the present invention to provide a satellite communications system and method capable of cancelling local transmission signal components or satellite return signal contained in its reception signal and providing good satellite communications, when the frequency band is to be efficiently used by positively incorporating interference. Although a frequency band is intended to be used efficiently through incorporation of interference, only a local transmission signal (S.sub.A or S.sub.B) cannot be separated from its reception signal by utilizing the antenna directivity characteristics and spatial diversity, as different from interference of a terrestrial wave which can be cancelled by conventional interference compensation technology. There are provided means for generating a signal same as the local transmission signal contained in its reception signal and means for cancelling

the local transmission signal contained in its reception signal by controlling the amplitude and phase of the generated signal. There is provided means for controlling a delay time of the signal for cancelling the local transmission signal or satellite return signal so as to compensate for a variation of a transmission delay time of the local transmission signal caused by drifts of a satellite. Since two signals of the same frequency band are allowed to be received at the same time by a satellite transponder, a limited power of the transponder is required to lower by 3 dB at the maximum in some cases. Since each earth station has its local transmission information, each local station generates a signal same as the local transmission signal components contained in its reception signal, and adds the generated signal having the same amplitude as, and the opposite phase to, those of the local transmission signal components to the reception signal to cancel or offset the local transmission signal components. In this manner, a signal of the same frequency band transmitted from a remote station can be correctly received.

Conclusion

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

5. **Any responses to this action should be mailed to:**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Naghmeh Mehrpour whose telephone number is 571-272-7913. The examiner can normally be reached on 8:00- 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marsha Banks-Harold be reached (571) 272-7905.

The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

NM

October 15, 2006